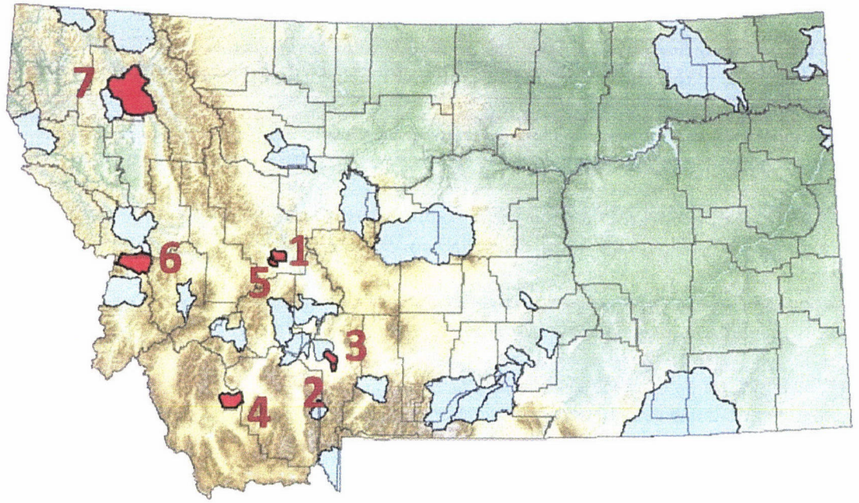
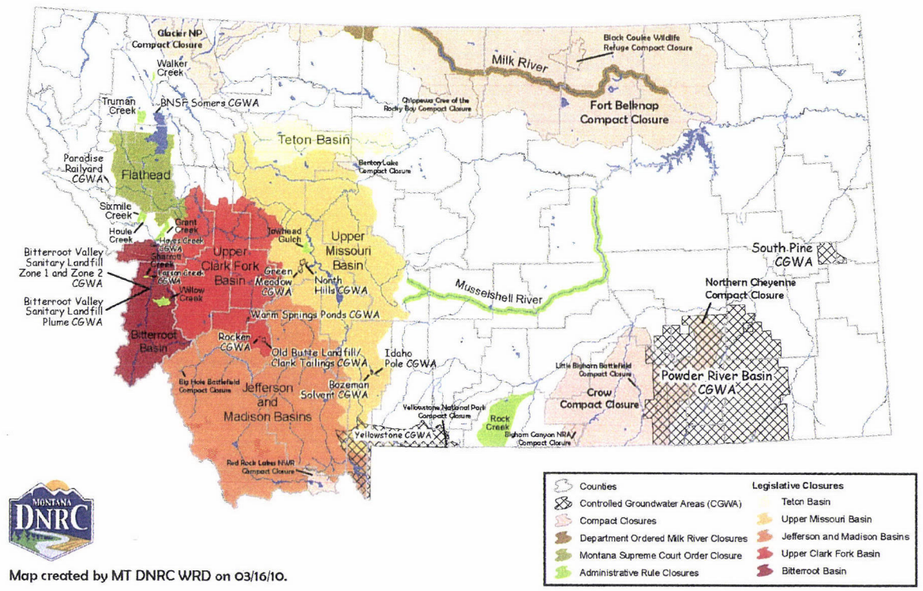
Montana Bureau of Mines and Geology
Montana Tech of The University of Montana
April 15, 2010

Current GWIP Sites:



Nominated GWIP sites (39)
Active investigations are in red (7)

Closed surface-water basins and controlled groundwater areas in Montana, March 2010:



Map created by MT DNRC WRD on 03/16/10.

Ground Water Investigation Program - Spending reduction analysis

http://www.mbmg.mtech.edu/gwip/gwip.asp

The **Ground Water Investigation Program (GWIP)** was established by the 61st Montana Legislature through House Bill 52. This bill was passed unanimously by the bi-partisan 2007/2008 Water Policy Interim Committee (WPIC) to address their finding that "continued and expanded study of ground-water resources is vital to shaping statewide policy as well as providing the data necessary for local decisions regarding water."

> ***Closing surface-water basins to new withdrawals and limiting water wells through the application of controlled ground-water areas as a water-management method was an important concern in initiating GWIP.***

The Legislature established GWIP to:

- investigate stream depletion from groundwater development by new withdrawals,
- determine groundwater/surface-water response to changes in irrigation practices,
- model cumulative effects of existing and proposed water development,
- assess aquifer storage and recovery (ASR) in Montana,
- evaluate potential mitigation/offset plans in closed basins, and
- complete 7 initial projects during this biennium at an average cost of $600,000 each.

The biennial budget was set at $4.2 million; of that, $2.1 million remains for FY11

Approach

Groundwater investigations are prioritized by the Ground Water Assessment Steering Committee. The investigations are intensely focused to answer citizen's questions. Investigations include drilling monitoring wells, collecting and analyzing groundwater and surface-water data, and coordinating the efforts with local interest groups. Data analysis includes computer modeling and interpretive reports. Data will be permanently and publicly accessible for future work.

Products for each project will include:

- A detailed report that describes the hydrogeologic system
- A computer model that simulates hydrogeologic features and processes
- A comprehensive set of hydrogeologic data, available online

> ***The models, reports, and supporting data will be technical in nature and used directly by senior water-right holders, new water-rights applicants, real estate developers, scientists and engineers representing permitting agencies, and other stakeholders. Informational pamphlets, public presentations, and other materials will be designed to make information available to the non-technical audience.***

Current status

Work on the first 7 of 39 proposed projects began in July 2009. The current field season (April through October 2010) provides the only complete field season during this biennial budget cycle. This is, therefore, the busiest time for contractual expenditures and monitoring activities. Field work is fully underway, and monitoring wells are being drilled, stream gauging sites installed. Testing and sampling are ongoing.

The project design for GWIP includes 14 professional positions. In addition to professionals, 7 student employees from 3 research campuses currently work on these projects.

Budget reduction assessment

Budget reductions will greatly impact the critical 2010 field season. Cuts that do not exceed 10% of FY11 funds will allow completion of all projects, but with a less than optimal data set. Cuts equal to or greater than 20% will result in selected projects being terminated, reduction of budgeted staff, and the remaining resources will be refocused to produce a satisfactory product for remaining projects.

Amount of reduction:	Anticipated Impact to products (Based on a projected budget for FY 2011 of $2.1 million, one-half of biennial allocation.)
$210,000 **10% of FY11**	• Reports completed for all 7 project results • Fewer data collected and available • Products based on less than optimal data set • Staff reduction over budgeted level: 1 professional and 2 student positions terminated
$420,000 **20% of FY11**	• 5 projects can be completed • One project must be terminated in mid-study • For the seventh project a status report will be generated, but the investigation will need additional work in a future cycle • Staff reduction over budgeted level: 3 professional positions and 4 student positions terminated
$1,000,000 **50% of FY11**	• Only 2-3 projects can be completely finished • 3-4 projects must be terminated in mid-study • For the seventh project a status report will be generated, but the investigation will need additional work in a future cycle • Staff reduction over budgeted level: ~50% (7 or 8) professional positions and all student positions terminated

Budget reduction impacts to Montana:

1) North Hills area, Helena: Impacts of subdivisions and septic systems on existing water rights and resources
- The debate as to the cause of groundwater declines (development or climate) will not be addressed; therefore the existing controlled groundwater area may be expanded
- Development has been slowed, in part due to the North Hills Controlled Groundwater Area
- Minimum lot sizes in subdivisions may be changed to reduce the number of wells
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2) Four Corners area, Bozeman: Land-use conversion, groundwater and surface-water interaction
- Development projects have been cancelled and put on hold pending groundwater/surface-water impact assessments
- Creation of new sewer and water districts is slowed due to uncertainty of water supplies and mitigation plans
- Permits for aquifer storage projects will likely be delayed

3) Belgrade: Groundwater and surface-water interaction
- Groundwater modeling of impact and mitigation will likely be required for new subdivision applications
- a controlled groundwater area may be pursued
- stream flow maybe reduced
- permits for septic and community waste water systems will be delayed

4) Lower Beaverhead River West, Dillon: Most of the new applications for irrigation wells in Montana have submitted from this area in the last 3 years
- Nearly all of the applications are on hold or have been withdrawn pending hydrogeologic assessments
- The initial financial investment in wells and sprinkling systems are endangered
- Water-rights litigation will continue with very limited data.
- Objections from US Bureau of Reclamation and senior water right holders will go unresolved until each applicant provides a separate approved mitigation plan.

5) Scratchgravel Hills, Helena: Declining groundwater levels and subdivision development
- Relationship between climate, groundwater withdrawals, and declining stream flow in Silver Creek will go unresolved
- Controlled Groundwater Area will likely be extended
- Minimum lot sizes have been established in part to reduce the number or wells and septic systems

6) Florence: Aquifer stress from development in a heavily populated area could lead to septic contamination and surface-water depletion
- Application for one or more subdivisions have been withdrawn or suspended until nitrate contamination sources are resolved.
- Subdivision and single dwelling growth will continue to be highly contested
- Water quality concerns will likely continue as an objection to new development
- Ravalli County will continue with a limited investigation, but contaminant transport modeling will not be conducted.

7) Flathead Valley Deep Confined Aquifer: Municipalities, irrigators, and residential wells have begun to exploit the deep aquifer
- The relationship between the deep aquifer and recharge to Flathead Lake are not defined.
- Groundwater declines may be due to climatic or over production from wells
- Future groundwater development will likely be limited by controlled groundwater areas
- Rural development may be slowed in all areas of the valley if recharge areas are not identified
- Concerns for stream and lake impacts will not be evaluated